

REMARKS

Reconsideration is requested in view of the above amendments and the following remarks. Claim 1 has been revised to include the feature of claim 3, with additional revisions. Support for the revisions can be found at, e.g., page 7, lines 11-13 and page 8, lines 8-10 of the specification, among other places. Claims 1 and 5-10 remain pending in the application.

Claims 1 and 5-10 are rejected under 35 USC 103(a) as being unpatentable over Iechi et al. (US Publication No. 2003/0213952) in view of Arai et al. (JP 07-297406) and in further view of Carcia et al. (US Publication No. 2003/0164497). Claim 1 has been revised to include the feature of claim 3, which is not subject to this rejection, thus, claim 1 and its dependent claims 5-10 are not subject to this rejection. Applicants are not conceding the correctness of the rejection.

Claims 1 and 3 are rejected under 35 USC 103(a) as being unpatentable over Iechi et al. in view of Morita et al. (JP 2003-084686) and in further view of Carcia et al. Applicants respectfully traverse this rejection. Claim 1 has been revised to include the feature of claim 3.

Claim 1 requires a thin film transistor unit and a display element unit that are laminated on a substrate in this order. That is, the thin film transistor unit is positioned between the display element unit and the substrate. Claim 1 also requires a source electrode of a thin film transistor being formed so as to be opposed to a pixel electrode in a thickness direction with an active layer interposed therebetween, where the pixel electrode is overlapped with the source electrode. Claim 1 further requires the pixel electrode having an area larger than that of a source electrode so as to cover an active layer on the source electrode substantially entirely, where the source electrode has an area not less than 25% the size of the pixel electrode.

The present configuration requires 1) that the thin film transistor unit and the display element unit be laminated on a substrate in this order, and 2) that the source electrode of the thin film transistor be formed so as to be opposed to the pixel electrode,

where the pixel electrode is overlapped with the source electrode. As a result, the thin film transistor is covered by a display element unit such that the distance that gas and moisture have to travel to reach an active layer of the transistor unit from outside has advantageously been increased, without increasing the number of constituent members of the display apparatus. This effectively suppresses the permeation of gas and moisture from the atmosphere into the thin film transistor unit and avoids deterioration of the physical property of the thin film transistor unit, thus helps to extend the life of the display apparatus (see e.g., page 3, lines 23-27 and page 10, lines 13-20 of the specification, among other places).

Iechi et al. fail to teach or suggest a thin film transistor unit and a display element unit that are laminated on a substrate in this order, as required by claim 1. Instead, as shown in Fig. 2, Iechi et al. discuss a drain electrode 12, a semiconductor layer 13 and a source electrode 15 formed one by one in this sequence on the upper surface of a substrate 11, where the semiconductor layer 13 is made from an electric field luminescent (EL) semiconductor material (see Iechi et al., paragraph [0036]). Iechi et al. are completely silent as to the order of how the thin film transistor unit, the display element unit and a substrate are positioned, much less any reason to expect the advantages that are enjoyed by the present invention, e.g., suppressing the permeation of gas and moisture from the atmosphere into the thin film transistor unit, could be achieved.

The rejection refers to a source electrode 20 and a drain electrode 60 of Morita et al. as suggesting the source electrode and the pixel electrode required by claim 1. Morita et al. is directed to a liquid crystal display device that has an increased current flow and improved luminance efficiency (see Morita et al., Abstract). Like the Comparative Example described in Table 1 of the present specification, Morita et al. merely discuss the source electrode 20 and the drain electrode 60 being placed side by side on the same surface of a substrate (see Morita et al., Figs. 1, 3, 4 and 5). As clearly shown in Figs. 1, 3, 4 and 5, in fact, the semiconductor membrane 30 in Morita et al. is not interposed between the source electrode 20 and the drain electrode 60. This arrangement teaches away from the invention of claim 1, which requires a pixel electrode being overlapped

with a source electrode and a source electrode being formed so as to be opposed to a pixel electrode in a thickness direction with an active layer interposed therebetween.

As described in the Comparative Example of the present specification, a source electrode 42 and a drain electrode 45d (pixel electrode 45) are placed side by side on a substrate 41 (see, e.g., page 9, line 14 to page 11, line 1 of the present specification, and Figs. 4A-B). The results shown in Table 1 demonstrate that the apparatus of the Comparative Example has a significantly shorter life than the invention of claim 1. This is because the organic semiconductor layer 43 in the Comparative Example is not covered by the drain electrode 45d (pixel electrode 45) and as a result, gas and moisture do not have to travel as a long distance as that in the invention of claim 1 to reach the organic semiconductor layer 43 from outside. Therefore, the display apparatus in the Comparative Example would not enjoy the advantageous longevity as the invention of claim 1.

In view of this and taking into consideration the fact that Morita et al. expressly teach away from a pixel electrode being overlapped with a source electrode and an active layer being interposed between the source electrode and the pixel electrode in a thickness direction, a person of ordinary skill in the art would not be motivated to use the structure of Morita et al. to reach the invention of claim 1.

For at least these reasons, claim 1 is patentable over Iechi et al. in view of Morita et al. and Carcia et al. Applicants are not conceding the relevance of the rejection to the remaining features of the rejected claims.

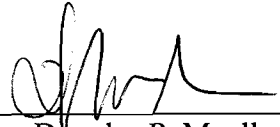
In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to the undersigned attorney, Douglas P. Mueller, Reg. No. 30,300, at (612) 455-3804.



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Dated: May 5, 2010

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